

1                   **ANGLE ADJUSTMENT DEVICE FOR**  
2                   **A PADDLE OF A CYMBAL STAND**

3    BACKGROUND OF THE INVENTION

4    1. Field of the Invention

5           The present invention relates to an angle adjustment device, and more  
6    particularly to an angle adjustment device for a paddle of a cymbal stand to allow  
7    the paddle to have a secure engagement with the cymbal stand during  
8    performance and for the angle adjustment of the paddle to be smooth.

9    2. Description of Related Art

10          With reference to Fig. 6, a conventional angle adjustment device (20) for  
11    a paddle (13) of a cymbal stand (10) mainly comprises a pivoting block (22)  
12    pivotally mounted between two legs of a bracket (11) of the stand (10) and two  
13    adjusting plates (32,32') interconnected to each other via a bolt (324). The first  
14    pivoting plate (32') is pivotally connected to a distal end of the pivoting block  
15    (22) and a distal end of a second pivoting plate (32) is pivotally connected to a  
16    distal end of the paddle (13). Therefore, when the paddle (13) is pressed by the  
17    performer, the linkage between the first and second pivoting plates (32,32')  
18    drives the pivoting block (22) to pivot, which drives the transmission rod (30) in  
19    connection with a cymbal (not shown) to move. When the paddle (13) angle is to  
20    be adjusted, the user loosens the bolt (324) to allow the second pivoting plate (32)  
21    to move relative to the first pivoting plate (32') so that the angle of the paddle (13)  
22    is adjusted relative to a surface of the ground so as to adapt to different  
23    performing habits of different performers.

24          However, the conventional angle adjusting device suffers from several

1 disadvantages:

2 1. The protruding head of the bolt (324) might hinder the movement of  
3 the performer's foot especially when the performer is playing the cymbal, as  
4 well as spoiling the overall appearance of the cymbal stand (10).

5 2. Accidental loosening of the engagement between the first and second  
6 pivoting plates (32,32') means that the performer will have to readjust the  
7 tightness to ensure that the two pivoting plates (32,32') are securely engaged  
8 with one another.

9 3. During angle adjustment, the user will have to loosen the bolt (324)  
10 first and then move the second pivoting plate (32) to a desired position.  
11 Thereafter, the user will have to tighten the bolt (324) again to secure the relative  
12 position between the first pivoting plate (32') and the second pivoting plate (32),  
13 which is too troublesome.

14 4. Magnitude of the stepping force on the paddle (13) is not changeable  
15 despite the change of the paddle angle such that it is impossible to satisfy users of  
16 different stepping forces.

17 To overcome the shortcomings, the present invention tends to provide an  
18 improved angle adjustment device to mitigate the aforementioned problems.

## 19 SUMMARY OF THE INVENTION

20 The primary objective of the present invention is to provide an improved  
21 angle adjustment device to allow the angle adjustment to be smooth and  
22 efficient.

23 Another objective of the present invention is to provide an angle  
24 adjustment device to allow the torque of the pivoting block to be changed to

1 adapt to users of different stepping forces.

2 Other objects, advantages and novel features of the invention will  
3 become more apparent from the following detailed description when taken in  
4 conjunction with the accompanying drawings.

#### 5 BRIEF DESCRIPTION OF THE DRAWINGS

6 Fig. 1 is perspective view of the angle adjustment device in combination  
7 with a cymbal stand and a paddle;

8 Fig. 2 is a side plan view of the angle adjustment device in Fig. 1;

9 Fig. 3 is schematic side plan view with partial in section to show the  
10 mutual relationship between the pivoting block and the adjusting bracket of the  
11 angle adjustment device;

12 Fig. 4 is a side plan view of the adjusting bracket;

13 Fig. 5 is a schematic side plan view in partial section showing the mutual  
14 relationship between the adjusting bracket and the pivoting block after the  
15 adjusting bracket is moved; and

16 Fig. 6 is a schematic side plan view showing a conventional angle  
17 adjusting device for a paddle of a cymbal stand.

#### 18 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

19 With reference to Figs. 1 and 2, it is noted that a cymbal stand (10) is  
20 equipped with a bracket (11) with two arms (110) spaced apart from each other,  
21 two legs (12) extendable relative to the bracket (11), a paddle (13) pivotal with  
22 respect to the bracket (11) and a transmission rod (14) movably mounted inside a  
23 column of the cymbal stand (10). The operation and structural relationships  
24 among the described elements are conventional and any person skilled in the art

1 would appreciate and understand that detailed description thereof is unnecessary.

2 The angle adjustment device in accordance with the present invention  
3 includes a pivoting block (30) and an adjusting bracket (40).

4 With reference to Fig. 3 and still taking Fig. 2 for reference, the pivoting  
5 block (30) is substantially cylindrical and has a centrally defined through hole  
6 (300) to receive therein a pivot (31) extending between the two arms (110), two  
7 tongues (301,301') respectively extending from an outer periphery of the  
8 pivoting block (30), a slot (302) defined between the two tongues (301,301') and  
9 in communication with the through hole (300) and an arcuate extension (34)  
10 extending from a plan face (32A) of the pivoting block (30), wherein the plan  
11 face (32A) has a stop (33) formed on and extending out from an outer side face  
12 of the plan face (32A).

13 With reference to Fig. 4 and still taking Fig. 3 for reference, the adjusting  
14 bracket (40) is substantially U shaped and has two side plates (41,41') and a  
15 bottom plate (42) integrally formed with distal ends of each of the two side plates  
16 (41,41'). A channel (43) is defined in each of the side plates (41,41') to  
17 correspond to the pivot (31) and a path (44) is defined in the bottom plate (42) to  
18 correspond to the stop (33) of the pivoting block (30). A first linkage (20) is  
19 securely connected to a distal end of the paddle (13) and a distal end of each of  
20 the two side plates (41,41'). A second linkage (21) is securely connected to an  
21 outer periphery of the arcuate extension (34) and a bottom end of the  
22 transmission rod (14) (as shown in Figs. 1 and 2).

23 Therefore, when the angle adjusting device of the present invention is  
24 assembled, it is noted that a securing element (preferably a screw) is applied to

1 extend through the two tongues (301,301') such that the pivoting block (30) is  
2 able to securely engage with an outer periphery of the pivot (31). Preferably, a  
3 bearing (not numbered) is sandwiched between the outer periphery of the pivot  
4 (31) and an inner periphery defining the through hole (300) so that the pivoting  
5 movement of the pivoting block (30) is smooth. An adjusting knob (45) is  
6 screwingly inserted into the stop (33) and abuts a side face of the bottom plate  
7 (42). Therefore, the adjusting bracket (40) is immovable relative to the pivoting  
8 block (30) after the adjusting knob (45) is extended into the stop (33) and abutted  
9 to the side face of the bottom plate (42). Thus the user is able to step on the  
10 paddle (13) to drive the transmission rod (14) (in Fig. 1) to move linearly.

11 When adjusting the angle of the paddle (13) is required, with reference  
12 to Fig. 5, the user is able to loosen the adjusting knob (45) and move the  
13 adjusting bracket (40) with respect to the pivoting block (30) along the path (44).  
14 After adjustment, the angle of the paddle (13) is changed and because the  
15 position of the pivoting block (30) is changed, the force on the paddle (13) to  
16 overcome the recovery force of the transmission rod (14) is accordingly  
17 changed.

18 Because the adjusting knob (45) is moved to the rear side of the cymbal  
19 stand (10), interference to the performer during the performance is obviated.  
20 Also, the overall appearance of the cymbal stand is not spoiled due to the  
21 rearward shift of the adjusting knob (45).

22 Due to the position change of the pivoting block (30), the torque and the  
23 force on the paddle to overcome the recovery force of the transmission rod is also  
24 changed.

1           Further, the interaction between the stop (33) and an inner face defining  
2   the path (44) provides a firm engagement between the pivoting block (30) and  
3   the adjusting bracket (40) so that the load on the adjusting knob is small and thus  
4   chances of having the adjusting knob become loose during performance of the  
5   cymbal are few.

6           It is to be understood, however, that even though numerous  
7   characteristics and advantages of the present invention have been set forth in the  
8   foregoing description, together with details of the structure and function of the  
9   invention, the disclosure is illustrative only, and changes may be made in detail,  
10   especially in matters of shape, size, and arrangement of parts within the  
11   principles of the invention to the full extent indicated by the broad general  
12   meaning of the terms in which the appended claims are expressed.